ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

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CONTENTS:

Remarks on Illustration..... 21
Lugger—Notes on Coleoptera..... 21
Ottolengui — Lepidoptera at Electric Light 23
P. P. C.—Elementary Entomology..... 27
Van Duzee—Immigration Story..... 30
Fox—A new species of Nyssonidæ..... 31
Notes and News..... 32
Entomological Literature..... 37

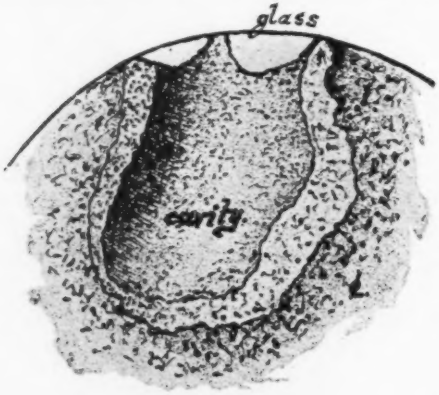
Illustration No. 2.—About ten months are supposed to have elapsed, and we now present our larva figured in Vol. II, Pl. I, transformed into an imago. This was also photographed by Mr. J. F. Sachse, editor of the "American Journal of Photography," to whom we are indebted for the plate.—ED.

NOTES ON COLEOPTERA.

BY PROF. OTTO LUGGER.

Cremastochilus Knochii Lec.—This beetle is rather abundant in the vicinity of our Experiment Station (St. Anthony Park, Minnesota), and occurs here from early Spring till late in fall. One field seems to be its favorite breeding ground. It is a field with poor and rather sandy soil, thoroughly exhausted by constant croppings, so that even oats can no longer be produced successfully. Being simply held on speculation for building lots, it is decidedly neglected for farming purposes. This field forms, however, not a bad hunting ground for a number of insects, and, besides other species of beetles *Harpalus erraticus* Say, *Bolboceras farctus* and *lazarus* Fab. and *Cremastochilus Knochii* Lec. are very common. With the exception of the latter all have to

be dug from the soil. But as they prefer to make their abode in solid ground, in a narrow path, they are easily found, as their presence is always indicated by a perfectly round hole, the size of which showing the particular species which made it. The *Cremastochilus* also frequents this path, and is usually found slowly crawling about, and most frequently several are found in close proximity to each other. A large number of small ants have also nests in this hard-trodden soil; these nests are under-



ground galleries, with exceedingly small openings towards the light, not much larger than the holes made by the heads of common pins.

Observation 1.—A *Cremastochilus* surrounded by numerous ants, was gradually pushed by them in a certain direction. The beetle was perfectly quiet, and offered no resistance to the ants, nor did it assist them in any perceptible way. As the process of moving such an immense object was exceedingly slow, I did not observe the ultimate destination of the procession.

Observation 2.—A *Cremastochilus* was found sitting right over one of the small entrances of an ant nest. With slow and very deliberate actions the beetle gradually enlarged the hole under it, and in the course of nearly seven hours disappeared from view. During all this time not a single ant appeared in its vicinity, nor did any assist the beetle in its efforts to penetrate to the nest below.

Observation 3.—Very similar to observation 2, only a number of ants assisted the beetle by removing the dirt scraped out by the latter.

Observation 4 —Early in Spring I found a number of these beetles mating above ground. Confining some in a low round jar, filled with earth to a depth of three inches, they soon disappeared from the surface. They lived in this jar for about two months, mostly hidden in the earth, but whenever the jar was exposed to the warming influence of the sun the beetles reappeared upon the surface and moved about rather actively for such slow insects. Several times they attempted to fly away. As I wished to obtain the eggs, I investigated the soil, and found a very peculiar structure in it, as illustrated in figure in natural size. The cavity was rather smooth inside and large enough to harbor the five pairs of beetles living in the jar. No eggs were discovered, but all ten beetles were found dead in the room made by themselves. As the upper roof of the nest was broken up in removing the soil from the jar, I do not know whether there was one or more entrances to this room.

Next season I intend to establish a formicarium with such beetles, with the view of studying the relations between them and the ants.

If I recollect right the locality for *Omus submetallicus* Horn seems to be in doubt. I have recently obtained a specimen from Washington.

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LIST OF LEPIDOPTERA TAKEN AT ELECTRIC LIGHTS IN BROOKLYN, WITH NOTES THEREON.

BY RODRIGUES OTTOLENGUI, M.D.S.

I am only a beginner, this Summer having been my first season, nevertheless I am told that my catch has been a remarkable one; remarkable in that it shows what may be done by thorough work in a single section. Seventy-five nights this Summer my sister and myself were out with our nets and bottles. The first night, early in May, we walked about aimlessly till we found an electric light near the ground, and here, and at the one next to it, we took fifty insects, the first being a Luna, which my sister captured. I will say here that, though we took other specimens of Luna, afterward we never took one having, like this one, a dis-

tinct border at the edge of all four wings. Subsequently, we tried other localities, but never had much luck; therefore, we finally went nowhere else; thus the following list shows what can be done in a single secluded, well-lighted spot near foliage, in the heart of a great city. I will mention the number taken when the insect is rare, or when only a few were captured. Of the others we took, or refused quantities, except of Geometridæ.

SPHINGIDÆ.

Of Sphingidæ we never took a specimen till after ten o'clock. *Thyreus Abbottii*, two males; *Deilephila lineata*, one male; *Philampelus achemon*, one male. Of this beautiful species I saw another specimen, but failed to get it. It alighted on a tree, and after climbing I saw no chance to get it in my net. I returned to the ground and took a bottle, but though I was most careful in trying to place the bottle over him, he dropped between the leaves and was seen no more. This lesson, however, proved of value, and later I secured a valuable insect under similar circumstances as will be told. *Everyx myron*, three males and one female; *Smerinthus geminatus*, two males; *Calasymbolus* (*Smerinthus*) *myops*, three pairs; *Ceratomia amyntor*, eight males; *Daremma undulosa*, one pair; *Phlegethontius carolina*, eight males and two females. One of these males is the valuable insect to which I referred. It is wood-brown, about the same shade as *Ceratomia amyntor*. Mr. Henry Edwards tells me that there is an insect in South America exactly like my specimen, which is counted a species, but which he has thought to be but a variety of S. Carolina, hence the extreme interest in finding this light variety in this latitude. This was at rest in the tree, as was the other which I lost. Profiting by experience, I took it with my fingers, thumb and finger above and below the thorax. It is only slightly ruffled on the upper side and not noticeable. *Phlegethontius celeus*, two males; *Sphinx drupiferarum*, one female; *Sphinx kalmiæ*, one male. Total, 40; not bad, I think, for late night hunting.

ZYGÆNIDÆ.

Alypia octomaculata, two pairs; *Eudryas grata*, three pairs; *Scepsis fulvicollis*.

BOMBYCES.—*Arctia nais*, one male and one female; *Arctia arge*, one pair; *Pyrrharctia isabella*. From a lot of these I have

picked out a set of seven males which show a gradual variation from having but a single spot on each wing to having very large black spots on the wings. *Leucarctia acrea;* males fairly common; took but one female. *Spilosoma virginica*, *Hyphantria textor*, *Euchætes collaris*, two pairs; *Halisidota caryæ*. I took a number of these, one pair only, having a spot on the secondaries, *Orgyia leucosigma*. One of my specimens Mr. Edwards says is the largest that he has ever seen. It measures one and a half inches. *Apatelodes torrefacta*, one male; *Datana angusi*, one male; *Datana intergerrima*, *Datana perspicua*, five pairs; *Nadata gibbosa*, five males. In one the silver spots on primaries are almost invisible. *Lophodonta ferruginea*, two males, one having secondaries all gray. *Edema albifrons*, one pair; *Seirodonta bilineata*, one pair; *Cœlodasys unicornis*, one pair; *Cœlodasys* ———*?*; one male only. Several well known collectors have failed to identify this. *Janassa lignicolor*, one male; a beautiful specimen. *Heterocampa unicolor;* a beautiful pair of this which I believe is difficult to take perfect. The male was taken in May and the female in last week of July. *Cerura borealis*, one male; *Cerura occidentalis*, one male; *Cerura cinerea* one pair; *Actias luna*, six males; *Philosamia cynthia*, *Callosamia promethea*, *Callosamia angulifera*, two females; *Platysamia cecropia*, *Hyperchiria io*, thirty males. I took many beautiful varieties of this one the primaries almost all cream color, another heavily shaded with black. *Eacles imperialis*, thirty males and three females. *Citheronia regalis*, two pairs; *Dryocampa rubicunda*, four males. *Clisiocampa americana*, *Artace punctistriga*, four males; *Cossus centerensis*, one male. I think this is the first reported from this locality. *Prionoxystus robinæ*, three females.

NOCTUÆ.—*Habrosyne scripta*, ten pairs. A remarkable catch I am told; very bright, beautiful specimens. *Raphia frater*, *Apatela occidentalis*, one pair; *Apatela lobelilæ*, *Apatela hasta*, one pair; *Apatela americana*, one male; *Apatelis hamamelis*, one male; *Apatela innotata*, one male; *Apatela dissecta*, one male; *Apatela oblinita*, *Agrotis C-nigrum*, *Agrotis plecta*, *Agrotis cupida*, one male; *Agrotis verticalis*, one male; *Agrotis annexa*, one female; *Agrotis malefida*, *Agrotis ypsilon*, *Agrotis saucia*, *Mamestra picta*, *Mamestra arctica*, one pair; *Mamestra renigera*, *Hadena devastatrix*, *Hadena vulvivaga*, *Hadena* ———*?*; one specimen only. Several collectors have failed to identify this.

Prodenia commelinæ, one pair; *Euplexia lucipera*, one female; *Nephelodes minians* and var. *violans*, of each one male; *Gortyna nebris* and var. *nitella*, of each one male; *Achatodes zeæ*, one male; *Heliophila albilinea*, *Heliophila phragmitidicola*, *Heliophila unipuncta*, *Heliophila pseudargyra;* oddly enough, I took but one specimen of this. *Heliophila pseudargyra* var. *callide*, one female; *Orthodes infirma*, one pair; *Cucullia convexipennis*, one pair; *Cucullia asteroides*, *Cucullia* ———*?*; absent in three large collections. *Telesilla cinereola*, two pairs; *Plusia ærea*, *Plusia precationis*, *Plusia ni*, *Plusia simplex*, *Tamilla nundina*; *Melicleptria thoreani* this I do not find in Grote's List, and I may have the specific name wrong.* *Melicleptria* ———*?* Mr. Henry Edwards thinks this an entirely new species. *Heliothis armiger*, *Ligranthecia spragnei Chamyris cerintha*, one pair; *Drasteria erechtea* and var. *agricola*, *Euclidia cuspida*, *Paralelis bistriaris*, *Homoptera edusa*, *Homoptera lunata*, *Epixeuxis americalis*, one female; *Chytolyta morbidalis*, *Hypena evanidalis*, *Hypena scabra*, *Hypena baltimoralis.*

GEOMETRIDÆ.

Chærodes transversata, *Caberodes confusaria*, *Ennomos alniaria*, *Eudalimia subsignaria;* took both sexes. *Endropia hypocharia*, *Metrocampa margaritata*, *Angerona crocataria*, *Anagoga occiduaria*, *Acidalia ennucleata*, *Acidalia quinqueliniaria*, *Caterva catenaria*, *Tephrosia canadaria*, *Paraphia subatomaria*, *Anticlea vasiliata*, *Petrophora diversilineata*, *Boarmia crepuscularia*, *Eubœa cognitaria.*

In making out this list I have followed Grote. In addition to those enumerated I took fifty specimens of *Zeuzera æsculi* found recently in this country. This insect was first reported in Newark. I have not yet heard of others taking it in Brooklyn. I found it quite common and enduring for three weeks. Had I known the the rarity of it, and value for exchange, I could easily have taken two hundred. I took, however, only two females, and those under peculiar circumstances. One night it rained so hard that I abandoned all idea of hunting, and made a social call. Returning about eleven o'clock I walked home, the rain having ceased. Walking along an asphalt roadway, lighted by electric lamps, I found hundreds of insects swamped on the wet pavement. Finally, I came to a little pool of water in which I noticed

* No. 969, Grote's List.—Ed.

two large insects floundering about. I took them out, placed them in an envelope, and hurried home, where I transferred them to a bottle. They were two females of the *Zeuzera*, and when dried made excellent specimens; antennæ perfect, and markings brighter than any of the males. I took and mounted during the season 2000 specimens exclusive of diurnals.

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ELEMENTARY ENTOMOLOGY.

Eighth Paper.—INTERNAL ANATOMY (concluded).

The nervous system consists of a series of paired nerve-knots, or *ganglia*, connected by two nerve cords (*commissures*), and extending the entire length of the body. Typically, there is a pair of ganglia to each segment of the body, but usually the number of pairs is less than the number of segments, owing to the union of adjacent pairs. This nerve chain lies below (ventral to) the alimentary canal for the greater part of the body, but in the head, the two commissures pass upwards, one on each side of the œsophagus to a mass of united ganglia lying on the dorsal side of the canal in the head. This mass is the *brain*, or *supra-œsophagial* ganglion; it is thought to be formed by the union of several pairs of ganglia corresponding to the number of segments of which the head is formed.

From the ganglia of this nerve chain, nerves are given off to surrounding organs. Certain other ganglia are connected with this nerve chain which do not correspond in position to the segments. These latter ganglia supply by their branches the alimentary canal and the tracheæ.

The organs of sight are the simple and the compound eyes.*

* See ENTOMOLOGICAL NEWS, vol. i, p. 104.

In 1888 and 1889, Prof. Felix Plateau published in French the results of his studies on the vision of Arthropods. Dr. David Sharp, of London, gave an account of these experiments in the "Transactions of the Entomological Society of London" for 1889, p. 397, *et seq.*, concluding with two "general impressions" which he has "derived from the study of Prof. Plateau's valuable experiments."

1. "That insects in motion are largely guided by the direction of light and the existence of lights and shades. . . . . ."

2. "That there is at present no evidence at all that the light-perceptions are sufficiently complex to be entitled to be called seeing; but that, as the large development of the compound eye permits the simultaneous perception of movement, its direction, and of lights and shades over a certain area, a dragonfly may pursue and capture another insect without seeing it in our sense of the word seeing. (Trans. l. c. pp. 407, 408)."

Certain sense organs, supposed to be those of hearing, exist in the first abdominal segment, and in the tibiæ of the first pair of legs in various insects (Grasshoppers).

Organs of smell are believed to exist in the antennæ of many insects.

Organs of taste are thought to be present in the labium and maxillæ of some insects.

The antennæ play the part of organs of touch to a great extent.

The muscles of an insect are very numerous. They are slender, faint yellowish fibres, transversely striated, not enclosed in sheaths. They are arranged in correspondence with the segments of the body wall and the joints of the appendages.

The respiratory system in insects consists of air tubes, or tracheæ.* They have their external openings, called *spiracles*, or *stigmata*, in the pleura of the thoracic and first eight abdominal segments, one pair to each segment. The number of pairs is thus never more than eleven, and is usually less. In the thoracic segments, at least, the spiracles are situated in the peritremes, and are usually guarded by hairs, or a chitinous piece, acting as a valve. A short trachea runs inwards from each spiracle to a large longitudinal trachea, one of which runs along each side of the body. These two large tracheæ are connected by cross-tracheæ, corresponding in position to the segments of the body wall. From the two main tracheæ and the cross-tracheæ, numerous branches are given off in all directions, to all parts of the body, thus supplying the organs directly and not indirectly through the blood as in vertebrates. So numerous are the branches of the tracheæ that they also serve to hold other internal organs in position.

The tracheæ are sometimes dilated into air-sacs, which also decrease the specific gravity of the insect. Air-sacs occur only in imagos of flying insects, and not in larvæ, or in imagos of creeping insects.

Aquatic insects breathe either (1) air which they take from above the water's surface, or (2) air which is mixed with the water. In the first case the insect carries, by its wings, or other means, a bubble of air obtained at the water's surface; or, its spiracles are prolonged into long tubes which reach to the water's surface while the insect is below it. Insects breathing the air

* See ENTOMOLOGICAL NEWS, vol. i, pp. 71, 141.

which is mixed with the water, are provided with so-called *tracheal gills*. These are usually thin, thread-like, or plate-like expansions of the body wall, richly furnished with tracheæ. The thin walls of these gills permit an interchange between the air in the water and the air in the tracheæ. Tracheal gills may be entirely external, or may exist within the hind part of the intestine. In that they are supplied only with tracheæ containing air to be purified, tracheal gills differ from true gills of fishes and crustaceans, whose vessels contain blood to be purified.

"The act of respiration consists in the alternate dilatation and contraction of the abdominal segments, the air entering the body chiefly at the thoracic spiracles. As in vertebrates, the frequency of the acts of breathing increases after exertion. . . . . 'In the pupa and larva state, respiration is performed more equally by all the spiracles, and less especially by the thoracic ones.'" (Packard)

Insects are unisexual, *i.e.*, the males and females are different individuals.* No external characters, such as shape, color, etc., can be given to distinguish between the sexes of all insects. The reproductive organs are contained in the abdomen. Those of the male are the *testes*, which are paired glandular bodies, secreting the *sperm*, or fertilizing fluid, in which are numerous, very small, tadpole-like *spermatozoa*. Each testis has a duct, the *vas deferens*, which may dilate into a *vesicula seminalis*, after which the two vasa deferentia unite to form the *ductus ejaculatorius*, which opens into the external intromittent organ (*penis*), usually situated on the ventral side of the abdomen near its apex.

The female reproductive organs are the pair of *ovaries*, in which the eggs (*ova*) are found. The duct of each ovary (*oviduct*) unites with its fellow and forms the *vagina*. The vagina is connected with the ovipositor,† or has a free external opening (*vulva*), usually situated on the ventral side of the abdomen near its apex. "Connected also with the vagina are one or more pouches (*receptacula seminis*), within which the sperm is received and stored." The sperm "retains its fertilizing properties for a long time. Thus the queen bee or ant, pairs but once, though

* "Cases not unfrequently occur in which from arrest of development of the embryo, the sexual organs are imperfectly developed, so as to present the appearance of being both male and female" (Packard). Such individuals are termed *hermaphrodites*

† See ENT. NEWS, vol. ii, p. 9. Opening into the vagina is sometimes a poison sac communicating with the sting.

she may continue to lay fertile eggs for years. The fertilization of the eggs of insects takes place at the time they are laid. There is in one end of the shell of the egg, one or more pores known as *micropyles*. Through these the spermatozoa enter the egg as it passes the opening of the receptacula seminis. In some cases, at least, it is not necessary that an egg should be fertilized in order that the embryo should develop. This has been proven with the Honey Bee. But so far as is known the unfertilized eggs of the bee produce only males" (Comstock).

A non-sexual reproduction alternating with a sexual reproduction occurs in certain insects, as plant lice.

All insects are produced from eggs, and are therefore called *oviparous*. In some cases, however, the eggs are retained within the body of the mother until after hatching. Such insects are termed *ovoviviparous*. P. P. C.

ANOTHER IMMIGRATION THEORY.

BY E. P. VAN DUZEE.

Chancing to pick up a copy of the "Canadian Entomologist" of November, 1887, while browsing among some old entomological papers—a favorite pastime with me—I lighted on a "Note on Southern Moths found in the North," by A. R. Grote, A.M. Here, after reiterating his "theory" that *Erebus odora* and other of the southern species of moths that are constantly being reported from northern localities are mere "wind visitors or immigrants;" he says: "This is my theory of immigration from the South; no other writer agrees to it or advocates it. Right or wrong, it is my own." Whether this theory has been proved or disproved by more recent writers I know not, but the capture of an *odora* in this city, under somewhat peculiar circumstances, it seems to me might shed a little light on the subject.

Early in the past season one of our young collectors, Mr. J. C. Will, took an example of this insect in a wholesale fruit house in this city among a large pile of bananas recently received from the South. The thought naturally presents itself: may not this and others of these stray visitants have been introduced through the agency of commercial transportation, either as a pupæ or imagos? Many subtropical creatures (spiders, scorpions, centipedes, etc.) have been found here in banana cargoes, and why

not moths? The importation of bananas here has increased enormously of late years, and a corresponding increase is noticeable in the number of *odora* taken. Further confirmatory evidence might be found in the food habits of the *odora* larvæ if these were better known.

A somewhat parallel case is the occurrence of the large southern grasshopper, *Dictyophorus reticulatus* Thunb., near Rochester, N. Y., from whence I have received, through the kindness of Mr. A. E. Romer of this city, a full grown example. When captured it was in company with several others of its kind near one of the large nurseries for which that city is famous. In this case it seems reasonable to presume a cluster of eggs had been introduced with southern nursery stock, probably imbedded in the earth attached to the roots, and the prolonged warm weather had enabled them to perfect their growth. As it is not included in Prof. Smith's Catalogue of the Insects of New Jersey it is very unlikely that it could survive our severe Winters and become a member of our fauna.

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A NEW SPECIES OF NYSSONIDÆ.

BY WILLIAM J. FOX.

Bothynostethus distinctus n. sp.

♀.—Black, shining; clypeus, sides of face, space between antennæ, posterior orbits and sides of metathorax, with silvery pubescence; tubercles, post-scutellum, line on anterior tibiæ, spot on intermediate and posterior tibiæ yellowish white; head finely punctured, clothed with moderately long, pale brown pubescence; face with a well marked, longitudinal central impressed line, which extends from between the base of the antennæ almost to the lower ocellus, the front presents before the anterior ocellus and at the sides of the posterior ones, a deep slit or furrow, the lateral furrows oblique, anterior margin of clypeus, in the middle, with two large, separated teeth; between the teeth and the lateral angles of the clypeus are situated two much smaller teeth; third joint of antennæ shorter than either the fourth or fifth, the fourth is slightly longer than the fifth; joints 8–10 are about equal; eyes diverging toward the vertex, the inner margin slightly bent inward above the centre of the face; prothorax emarginate above in the middle, with a yellowish white, narrow line, interrupted at the emargination; beginning behind the emargination of the prothorax are two parallel, strongly marked lines, extending to the centre of the dorsulum; scutellum sparsely punctured, with a median impression, which is more distinct posteriorly; the suture between the dorsulum and scutellum deep and broad, the sides denticulate; post-scutellum divided by a median im-

pressed line; metathorax with a broad and deep longitudinal channel, the channel broadening at the base of the posterior surface of metathorax into a somewhat cordate pit, base of metathorax smooth, a little beyond a curved, deeply foveolate furrow extends from the central channel to the anterior-lateral angles of the metathorax; between these furrows and the sides, which are rugose, is a finely punctured space, posterior face before apex marked with deep pits. Wings hyaline at base, the apical half fuliginous; nervure and stigma black; costal and subcostal nervures confluent; tegulæ rufo-piceous, tibiæ and tarsi covered with whitish pile. Abdomen finely punctured, clothed with pale brown pile, which is more dense laterally, and on the fifth and sixth segments above, and on the posterior margins of the segments beneath, the posterior margins of the segments above smooth, rufo-piceous; pygidium large, rounded at tip, covered with appressed pale hair, venter reddish beneath. Length .35 inch.

♂.—More slender than the ♀, the anterior margin of the clypeus subtruncate, or slightly sinuate; the anterior tibæ in front and the tarsi are rufous; pygidium short, obtuse at tip, with appressed pubescence, otherwise as in the ♀. Length .30 inch.

Three specimens, Camden County N. J., July 22d, and Aug. 10, 1890.

In this, we add to our fauna a genus that seems to be intermediate between the *Nyssonidæ* and *Larridæ*, which is well defined by the unarmed metathorax, the intermediate tibiæ having but one spur at apex and the mandibles being notched on their outer margin as in *Larra*.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

☞ See change of wording in notice of Identification of Insects.

IN Mr. Liebeck's article on the Cicindelidæ of a Season, published in the December number (vol. i) of the NEWS he states that he knew of but two specimens of *Cicindela tortuosa* ever taken in New Jersey. I would like to place on record the capture of a third specimen, which was taken alive, and was found in company with *C. hirticollis;* the specimen was captured at Atlantic City, N. J. It seems strange that Mr. Liebeck should remember but two specimens of this species ever taken in New Jersey, when it was at Mr. Liebeck's own suggestion that the specimen in question received a bath of benzine to bring out the markings more clearly.

PHILIP LAURENT.

THE following description of a variety of *Papilio turnus* may be of interest to the readers of the NEWS: The specimen, which is a ♂, was taken on the 6th of July, 1890, at Mt. Airy, Pa. The specimen differs from the normal ♂ in the almost entire absence of the row of yellow markings in the black border of the anterior wings, only the two yellow markings in the extreme apical portion of the wings being present, while the row of yellow markings in the border of the posterior wings is narrowed down to a mere dash, the yellow of which is thickly interspread with many gray scales. Of the many descriptions and figures of the varieties of *P. turnus* that have been published from time to time, none describe the above variation.—PHILIP LAURENT.

RETINIA COMSTOCKIANA Fernald, occurs abundantly in yellow pines at Sugar Grove, near Lancaster, Ohio. Serious damage results in consequence, as the infested twigs and branches invariably die. At present, October, the larvæ are lining their mines preparatory to hibernation. The habits of the insect here agree well with those given by Prof. Comstock (Report Dept. of Agriculture, 1879), whose observations were made at Ithaca, N. Y. I have found that weevil follows the moth's larva as a borer in the dead twigs.—Prof. D. S. KELLICOTT.

PLATYCERURA FURCILLA Packard. At the above-mentioned station, late in September, I took several larvæ, apparently of *P. furcilla*. They were all found concealed among the yellow pine needles; in confinement they were rarely seen feeding. Dr. Lintner has described, with his usual accuracy, the larva and its habits in "Entomological Contributions," No. 3. p 131.—Prof. D. S. KELLICOTT.

THE ELECTRIC LIGHT AS AN INSECTICIDE.—Any one taking the trouble to examine the contents of the globe surrounding an arc light, in the morning, will be astonished at the immense number of insect remains, consisting of all orders. By far the greater number are small lepidopterous forms, and, according to my experience, the Tortricidæ outnumbering all the rest. Many Neuroptera fall victims to the light, among them large numbers of the "aphis lions," whose larvæ feed on the aphides, or plant lice; thus we lose one of the agriculturist's best friends. Many species quite rare in collections may be taken in this way, though very few perfect specimens are to be had, owing to the intense heat of the carbons, the slightest touch of which burns the wings. Prof. Lintner made a microscopical examination of the contents of a single globe, and estimates that the débris he inspected represented 33,000 insects, and he believes the average number destroyed in a night by a single lamp at nearly 100,000. On one occasion I saw nearly three pints of bodies, legs and wings emptied from a single globe by a man who replaced the carbon in the morning.

C. A. B.

HUMORS OF COLLECTING.—Like all other things, entomology has its ludicrous side, as some such squibs as the following will verify: A few years ago while out collecting with a fellow-entomologist, not far from

Gloucester, N. J., we got in the neighborhood of some tumble-down shanties; at the back gate of one that opened on a lot covered with weeds stood a woman, with arms akimbo, intently watching our manœuvres, when my friend captured a specimen of *Limenitis ursula*, at which the curiosity of the aforesaid female was sufficiently aroused to ask the question, "What do you do with them things?" "Oh," said he, "we preserve them." Lifting up her hands in apparent disgust, she said, "Sakes alive, what'll people eat next!" On another occasion, while collecting along the Camden and Atlantic Railroad, I saw, in a narrow gully that ran parallel to the track, a portion of a dead snake, which I saw move, and, concluding there was a "bug" at work, I turned it over and found a male *Necrophorus americana;* while looking for the female, which I presently found, a countryman, walking along the track, stopped and looked down at me just as I dropped it in my bottle and said, "What do you do with them air things?" but before I had time to frame an answer he continued, "do you make medsin of 'em?" I said "yes;" he then said, "yaas, I've heern tell of that afore."—C. A. B.

It may be of interest to the readers of the News to know that here in Oregon we are sympathizers and sufferers with our eastern friends from that dread pest of hop growers the hop louse (*Phorodan humuli*), being the same as has been doing so much damage heretofore in the Eastern States. It has been described and written about extensively by the Department of Agriculture at Washington, D. C., and a further description would be out of place here. The hop crop of Washington for the year 1890 has been estimated at 38,000 bales, that of Oregon some 18,000 less, making a total of 58,000 bales, which may be figured at least within a very reasonable limit at 200 pounds to the bale and 30 cents per pound, or $60 per bale, or $3,480,000 for the crop. The loss from the hop louse, where I have been able to observe, was at least one-fourth of what was gathered, or one-fifth of the entire crop, and from the best I have been able to learn the loss was about the same in other places; those exposed to the morning sun and sheltered from the wind by woods, etc., suffered most, the upper river bottoms in general next, while some places were almost free from them. By taking one-fourth of those saved, the larger amount of which was more or less damaged, it shows the remarkable loss of $870,000 from those little insects alone, so inconspicuous, yet in numbers so formidable. In some localities they came too late to do much damage, but where they came early they carried destruction with them. From the above figures we conclude it would be well for hop growers to avail themselves of the benefits to be derived from the painstaking researches of our government and let it guide them to the avoidance, if possible, of a similar visitation next year.—Aurelius Todd.

A Forest Plague in Bavaria.—The current *Kew Bulletin* contains several documents describing a terrible pest which has attacked the Bavarian pine forests. It is known as the *Nonnen*, and is caused by the caterpillar of the moth *Liparis monacha*, which has regularly attacked

forests on the Continent for the last 200 years or more. The pest appears at long intervals, but each appearance has been calamitous. In Bavaria alone the loss in State forest revenue next year is estimated at £40,000. According to the report of Mr. Victor Drummond, the Minister at Munich, the Winter frosts alone can now rid the forests of the caterpillars, and then it is feared that the bark beetle will follow and attack the diseased wood. Cuckoos, swallows and other birds, as well as wasps and other insects, have helped to get rid of the "nuns;" torches and bonfires have also been used with success; and the electric light, with a specially constructed exhauster, has been used with some success. Munich has been invaded by the "nuns" in immense numbers, and in some places the people were obliged to retreat before them. The Bavarian Forest Administration fears that no measures of destruction are of any avail. "We stand powerless before the immensity of the pest." It attacks by preference the pine and fir, but, failing these, it does not despise the beech, oak, and other forest trees; but it never attacks corn or wheat, and will never touch the horse chestnut. The only efficient general measure seems to be cutting down the whole forest infected, which makes the remedy worse than the disease. The electric light already referred to works by attracting the insects in swarms to the mouth of a large funnel, through which a rapid exhaust current of air is forced, sucking the insects into a hole under the ground, where they are buried. From a list of the various appearances of the pest, it seems that the first was in 1449. In 1853 an attack was made on East Prussia, but a storm drove the moths into the sea, whence they were thrown up by the waves in a huge bank, 30 German miles long, 7 feet wide, and 6 inches thick.

A Dragonfly with an Abnormal Wing.—A female of *Libellula pulchella* Drury, which I have lately examined, has the left front wing imperfectly developed. This wing is but three-fifths of the length of the right front wing (which is normal). The shortening has taken place throughout the entire length of the wing, but chiefly in the space between the nodus and the pterostigma. The median sector separates from the principal sector at about the usual place—half way between the triangle and the nodus—but it is very short, as it curves and joins the subnodal sector at about the same distance from the origin of the subnodal, as that between the origin of the subnodal and the point of separation of the median and principal sectors. The subnodal sector has its origin and position much as normal, but under the pterostigma it bifurcates. The short sector is bifurcated near its extremity, but is otherwise normal. The nodal sector is absent, unless it be represented by a short curved vein in the costal space between the nodus and the pterostigma, extending from the nodus to the median nervule. The discoidal areolets are entirely irregular. The two sectors of the triangle are broken and very irregular. The pterostigma is a little broader than normal, the apical spot is not as large; the nodal spot is represented by a streak with the same oblique trend as the normal spot.

The measurements of this wing as compared with the right front wing are as follows: in all cases the first figure is that of the (normal) right wing. Length 39.5 mm., 24 mm.; greatest breadth 8.5 mm., 8 mm. Length of pterostigma 5 mm., 5 mm. Distance from base to nodus 20 mm., 14 mm. Distance from nodus to inner side of pterostigma 12 mm., 3 mm. Antecubitals 17, 9. Postcubitals 12, 2 (the second very short, running from the short curved vein = nodal sector?, see *ante*, to the costa). Discoidal triangle long and narrow, with 3 cross-veins; shorter and broader, with 1 cross-vein. Internal triangle 6 cells, 2 cells. Hypertrigonals 2, 0. Basal streak extends to level of 8th antecubital, about 11 mm.; to level of half way between 4th and 5th antecubitals, about 8 mm.

The relative positions of the unmentioned veins are as nearly normal as the shortness of the wing will allow. Both hind wings and the rest of the body are normal.

This female (an adult) was taken in the upper part of the city of Philadelphia, in 1890, by Mr. Charles Yung, who presented it to Mr. Charles W. Johnson of the Wagner Institute. To the kindness of Mr. Johnson I am indebted for the opportunity of examining and describing it.

PHILIP P. CALVERT.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Twelve names, if possible, will appear in each issue of NEWS, according to number. Address packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

GEORGE MILLER.—2, *Cacœcia fervidana;* 5, *Therina seminudaria;* 7, *Thelcteria pupula;* 9, *Mesographe stramentalis;* 12, *Pamphila campestris.*

F. H. HILLMAN.—1, *Polyphylla decemlineata;* 2, *Aphodius granarius;* 3, *Cotalpa granicollis;* 4, *Cremastochilus pilosicollis;* 5, *Silpha ramosa;* 6, *Silpha lapponica;* 7, *Dermestes marmoratus;* 8, *Hippodamia americana;* 9, *Hippodamia Lecontei;* 10, *Hippodamia spuria;* 11, *Coccinella transversoguttata;* 12, *Hippodamia convergens.*

G. D. BRADFORD —1, *Galeruca decora?;* 2, *Dibolia borealis;* 3, *Gastroidea cyanea;* 4, *Amara impuncticollis;* 5, *Melanotus communis;* 6, *Platynus placidus;* 7, *Platydema ruficorne;* 8, *Oedionychis vians;* 9, *Agonoderus pallipes;* 10, *Byturus unicolor*, var.; 11, *Telephorus carolinus;* 12, *Platydema americanum.*

Entomological Literature.

THE ENTOMOLOGIST, December, 1890.—Editorial notes on Rhopalocera of West Norfolk, by A. Smith. Collecting in Wales, by J. Arkle. A preliminary list of the insect fauna of Middlesex, by T. D. A. Cockerell. Contributions to the chemistry of insect colors, by F. H. Perry Coste. Lists of insects taken in the Faroe and Westmann Isles, and in Iceland, by Dr. F. A. Walker. Entomological notes, captures, etc. Doings of Societies.

THE ANNALS AND MAGAZINE OF NATURAL HISTORY, December, 1890. On new Longicorn Coleoptera from Madagascar, by C. J. Gahan. Descriptions of new genera of Pyralidæ, by W. Warren. *Aspidiotus bicarinatus*, a lepidopterous larva, by E. E. Green.

THE JOURNAL OF THE BOMBAY NATURAL HISTORY SOCIETY, vol. v, No. 3.—On new and little-known butterflies from the Indian region. with descriptions of three new genera of Hesperidæ, by Lionel De Nicéville (with two plates). On new and little-known Hymenoptera from India, Burma and Ceylon, by Major C. T. Bingham (with two plates). Notes on the larvæ and pupæ of some of the butterflies of the Bombay Presidency, by J. H. Davidson and E. H. Aitken (three plates). Butterflies of the Central Provinces, by J. A. Betham, pt. 3. List of Chin-Lushai butterflies, by Lionel De Nicéville. The protective coloring of chrysalids, by A. W. Morris.

THE CANADIAN RECORD OF SCIENCE, vol. iv, No. 4.—A new Canadian *Platynus–P. hornii*, by T. Hansen, fig. on p. 236.

MATHEMATISCHE UND NATURWISSENSCHAFTLICHE BERICHTE AUS UNGARN, vii (June, 1888–October, 1889), 1890.—A. Mocsary prints (in German) the introduction to his Monographia Chrysididarum Orbis Terrarum Universi.

L'AUXILIAIRE (Amiens), October, 1890.—The wax of the cochineal insect, by E. André.

COMPTE-RENDU. SOCIETE ENTOMOLOGIQUE DE BELGIQUE, Nov. 8, 1890.—Three unpublished Psychids from southeastern Africa,* by F. J. M. Heylaerts. *Megalodon Blanchardi*,* n. sp., by C. Brongniart. Description of a new species of Elaterid of the genus *Chalcolepidius*, by E. Candeze; *C. pistorius*, Honduras. Description of a new species of Elaterid of the genus *Adiaphorus* (Candeze),* by G. Dumont. Note on the Hydrocanthares of Chota-Nagpore,* by G. Severin. Diagnoses of some new Coleoptera from the Congo,* by A. Duvivier; *Bangalaia*, n. gen. of Prosopoceridæ.

* Contains new species other than North American.

DEUTSCHE ENTOMOLOGISCHE ZEITSCHRIFT, 1890, heft 2.—Some new Coccinellidæ,* by J. Weise; *Niteta* n. gen. Tenthredinidæ of Europe, by F. W. Konow; an analytical table of genera and a catalogue of species; *Amauronematus*, *Holcocneme*, *Pachynematus*, *Lygæonematus*, *Micronematus*, *Eriocampoides*, *Scolioneura*, *Loderus*, *Encarsioneura*, n. gen. Description of new Snout Beetles from China,* and The habitat of the genus *Endaliscus* Kirsch, and a new representative thereof,* by J. Faust. On the varieties of some species of Goliathidæ, by Dr. G. Kraatz. New species of *Glycyphana*,* by Dr. K. Flach. *Cirrhospila* and *Melinospila*, two new genera of Macronotidæ (Cetonidæ), by Dr. G. Kraatz; 1 plate. On the genus *Granida* Motsch., id. On varieties of *Cicindela* [several species]; id. On species of *Melæ*,* by K. Escherich. Analytical review of the known species of *Lethrus*.* by E. Reitter. List of the Wasp Guests collected by Dr. A. Forel in South Tunis and East Algeria,* by E. Wasmann. New Myrmecophilous Staphylinæ from Brazil,* by E. Wasmann; figs.; *Ecitophila*, *Mesotrochus* n. gen. Snout Beetles from the Mediterranean countries,* by J. Faust. Mylabridæ or Bruchidæ, additional notes,* by F. Baudi. *Malthodes Liegeli*,* n. sp., by J. Weise. Two new North African genera of Melolonthidæ, by Dr. G. Kraatz; *Microphylla*, *Sphodroxia*, n. gen. Thirteenth contribution to the Coleopterous Fauna of Turkestan,* by Dr. L. von Heyden, E. Reitter and J. Weise. Contribution to the Coleopterous Fauna of Amasia and Samsoun in northern Asia Minor, by Dr. L. von Heyden and E. Reitter. Revision of the species of the Palæarctic Fauna of the Coleopterous genus *Hoplia Ill.*,* by E. Reitter. New Coleoptera from Europe, the bordering countries and Siberia, with remarks on known species,* eleventh part, by E. Reitter. On varieties of *Pachnoda* (two species) and *Brachagenius*, new genus of Trichiadæ,* by Dr. G. Kraatz; figures.

VERHANDLUNGEN DES NATURHISTORISCHES VEREINS DER PREUSSICHEN RHEINLANDE, WESTFALENS UND DES REG. BEZIRKS OSNABRUCK, 5th series, vii, 1st half, 1890.—The Coleopterous Fauna of Soest, by C. Verhoeff. The Gall-flies and Galls of Siegerland,* by E. H. Rübsaamen; with two plates.

1. BIDRAG TIL KUNDSKABEN OM NORGES HEMIPTEROG ORTHOPTER-FAUNA. 2. SUPPLEMENT TIL H. SIEBKE'S ENUMERATIO INSECTORUM NORVEGICORUM, Fasc. iv (Diptera), Christiana, 1889. Both by W. M. Schoyen.

NOVA ACTA DER KSL. LEOP.-CAROL. DEUTSCHEN AKADEMIE DER NATURFORSCHER, liv, No. 4, 5. Halle, 1890.—Systema Geometrarum zonæ temperatioris septentrionalis, by C. F. von Gumppenberg, Parts 3 and 4; *Cartographa*, *Limonophila*, *Epicaste*, new genera.

ENTOMOLOGISCHE NACHRICHTEN, xvi, No. 22, November, 1890.—Synopsis of the species of the coleopterous genus *Acmæodera* Eschsch.

* Contains new species other than North American.

known to me from Europe and the neighboring countries,* E. Reitter. For preparing Hymenoptera, by Dr. H. von Jhering. Ichneumonid studies,* by Dr. Kriechbaumer, *Ischnidium*, n. gen. for *Ischnogaster* preoccupied.

ZEITSCHRIFT FUR WISSENSCHAFTLICHE ZOOLOGIE, li, No. 1.—On the Halteres of Diptera, by E. Weinland. A paper of 112 pages, illustrated by five plates and two woodcuts.

ARCHIV FUR NATURGESCHICHTE, lvi, 1 Bd., No. 3.—The claw joint on the Insect Foot: A contribution to the knowledge of its structure and function, by A. Ockler; two plates.

REVUE BIOLOGIQUE DU NORD DE LA FRANCE 3e Annee, No. 3.—Notes on the Acarocecidæ,* by Dr. H. Fockeu.

IL NATURALISTA SICILIANO, ix, No. 11.—Some remarks on the work of Prof. B. Grassi and Dr. G. Rovelli. "Il sistema dei Tisanuri" [Thysanura,] by Dr. J. T. Oudemans. No. 12. Lepidopterological notes (continued), by E. Ragusa; on Sicilian species.

SITZUNGSBERICHTE DER KONIGL. BOHMISCHEN GESELLSCHAFT DER WISSENSCHAFTEN. MATHEMATISCH-NATURWISSENSCHAFTLICHE CLASSE, 1890, I.—Preliminary list of the Bohemian Trichoptera, by F. Klapalek.

ENTOMOLOGISCHE NACHRICHTEN, xvi, No. 23.—List of Locustodeæ of the families Phaneropteridæ, Mekonemidæ and Gryllakridæ, collected by Dr. Paul Preuss at Barombi Station, German West Africa, in 1890,* by Dr. F. Karsch; *Dithela*, *Drepanophyllum*, *Caloptropteryx*, *Preussia*, new genera.

COMPTE-RENDU. L'ACADEMIE DES SCIENCES, Dec. 8, 1890.—Note on a new genus of jumping *Acarina* from the coast of the Channel, by MM. Topsent and Dr. Trouessart; *Nanorchestes amphibius*, gen. and sp. new.

TIJDSCHRIFT VOOR ENTOMOLOGIE, xxxiii, Deel, 1 and 2, Aflevering. [The Hague,] 1890. The Macrolepidoptera of Breda and its environs, supplementary list No. 9, by F. J. M. Heylærts. Tabular review of the Bembidioni taken in the Netherlands, by Dr. E. Everts. *Papilio van de Polli* nov. sp.,* by P. C. T. Snellen. Comparative studies on Wasp Guests and Termite Guests, by E. Wasmann, one plate. *Euplæa Gelderii* nov. spec.,* by P. C. T. Snellen. System-Schema of the Pselaphidæ, by Dr. L. W. Schaufuss; an analytical table of the family with descriptions of new fossil genera and species from the Baltic amber; four plates illustrate both living and fossil species. On two native and three Javan species of the genus *Hypenodes* Guen.,* by P. C. T. Snellen; one plate. Proceedings, etc.

* Contains new species other than North American.

ENTOMOLOGISCHE NACHRICHTEN, xvi, No. 24, December, 1890.—List of the Locustodeæ of the families Phaneropteridæ, Mekonemidæ and Gryllakridæ, collected by Dr. Paul Preuss at Barombi in German West Africa in 1890 (concluded), by Dr. F. Karsch. On Gomphidæ,* ibid.; *Neurogomphus*, *Podogomphus*, n. gen. Additions to the Hymenoptera described in No. 21,* by C. Verhoeff. Notes. Literature. As if in confirmation of certain remarks of the reviewer in the January number (pp. 17, 18), Dr. Karsch says, in a foot-note to his article on the Gomphidæ, "Since not names alone, but only clear ideas advance science, I here follow the well-weighed works of the monographer Selys and not Kirby, whose Synonymic Catalogue of the Neuroptera Odonata has already suffered an unfavorable criticism from Selys. . . . . The use of a generic name *Aeshna* F. (for *Gomphus* Leach) alongside of *Aeschna* Illig. should hardly find observance."

REVUE D'ENTOMOLOGIE (Caen), ix, No. 10, October, 1890.—Habits and metamorphoses of insects (concluded), by Capt. Xambeu (Coleoptera). To the knowledge of the Nabidæ,* by O. M. Reuter; *Hoplistoscelis* (for *N. sericans* Reut. and other species from N. America, etc.), *Halorabis*, *Lasiomerus*, *Acanthonabis*, *Stenonabis*, new subgen. Necrology—E. T. Atkinson, E. Bergroth. Materials for the myrmecological fauna of Sierra Leone (West Africa),* by Ernest André; *Psalidomyrmex*, n. gen.

* Contains new species other than North American.

OBITUARY.

OWEN S. WILSON died at Cwmffrwd, Carmarthen, on August 25th last. He was the author of a work on the Larvæ of British Lepidoptera, 367 pp., 40 colored plates; published in 1880.

E. T. ATKINSON, Accountant General of Bengal, and President of the Board of Trustees of the Indian Museum, died at Calcutta, September 15th. His entomological writings are important and well known, one of the latest being a Catalogue of the Capsidæ of the World.

ENTOMOLOGICAL NEWS for December was mailed December 1, 1890.
" " for January was mailed January 3, 1891.